

## ABSTRACT

A photonic crystal optical waveguide includes a optical waveguide portion having a core made of a photonic crystal with a structure having a periodic refractive index in at least one direction perpendicular to a propagation direction of guided light and having a uniform refractive index in the propagation direction of the guided light, and a cladding arranged in contact with the core, in order to confine the guided light in the core, and an incident-side phase modulation portion arranged in close proximity or in contact with an incident surface of the core.